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A brief outline for teaching agriculture
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A Brief Outline For Teaching Agriculture in Public Schools.

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This brief circular is to meet the very urgent need of the present and will be followed later by a more complete corn pamphlet by the same writer containing outlines, sample lessons, experiments, score cards, and much other valuable information for the teacher. Other pamphlets will follow dealing with other agricultural topics such as weeds, insects, grasses, poultry, oats, wheat, soils, etc.; and domestic science topics, such as sewing, cooking, etc. In rural schools there should be in the same years work in agriculture and in domestic science. The first year's work in agriculture will be on corn and should be taught in September, October (first half) December, January, February and March. The first year's work in domestic science should be taught in October (last half) November, April, May and June. This will enable boys and girls to take both which they usually like to do. The first outlines for domestic science are now in preparation.

CORN

The following topics should be taken in order.

1. What is wrong with the Corn Crop? (Sept.)
2. Counting the Stand (Sept.)
3. Saving the Seed Corn (Sept. & Oct.)
4. Judging (Studying) Corn (Dec. & Jan.)
5. Testing Seed Corn (Feb. & Mar.)
6. Preparing Seed for Planter (Feb. & Mar.)
7. Preparing Planter for Seed (Feb. & Mar.)

The following may be taken in any order and when most convenient.

8. Preparing the Seed Bed.
9. Cultivating Corn.
10. How the corn plant grows.
11. History of the Corn plant.
12. Kinds and Varieties of Corn.
13. Improving the Corn Crop.
14. Corn Arithmetic.
15. Friends of the Corn Field.
16. Machinery for the Corn Crop.
17. What becomes of the Corn Crop.
18. Corn and the Rotation of Crops.
19. Weed Enemies and How to Treat Them.
20. Insect Enemies and How to Defeat Them.

SUGGESTIONS ON THE 20 TOPICS

The months named are the best ones in which to do this work but if a teacher wishes to begin at some other time, say January, she can begin with No. 1, and go rapidly along to No. 4 and then take the others in season.

1. What is wrong with the Corn Crop.

Purpose: To show pupils there is something wrong with the corn crop of Iowa and interest him in discovering the cause and remedy. Give pupil lists of questions, such as How many acres in your farm? How many in corn? Oats? Wheat? Orchard? etc. until whole acreage is accounted for. Bring to school sack of corn and small scales. Have each pupil put on scales and weigh amount of corn he thinks grows on average hill in Iowa. How many hills on an acre? (How find out) How many stalks in a hill? How many ears on stalk? How much large ear weighs? Small ear? Medium ear? How many bushels per acre if one pound per hill? Two pounds? One-half pound? Three-fourths pound? What would average yield per acre be in state if pupil's estimate per hill were correct? (Each figure.) What is average yield per acre in state? (See Iowa Yearbook.) What is average of best farmers in your county?

2. Counting the Stand of Corn.

Purpose: To find why yield of corn is so low. (Arouse interest with questions.) Go into your corn field, select an average spot, count 100 hills and record number of stalks in each hill, thus 3, 1, 0, 4, etc. Bring record to school. Standard of perfection 3 stalks to hill. (4 or 5 will count as 3.)

Sample record and method of figuring per cent of stand:

42	3, 4, 5	stalks hills	(100 per cent perfect)	equals 42 per cent stand.
30	2	stalk hills	(80 per cent perfect)	equals 24 per cent stand.
10	1	stalk hills	(40 per cent perfect)	equals 4 per cent stand.
18	0	stalk hills	(00 per cent perfect)	equals 00 per cent stand.
100		hills		equals 70 per cent stand.

Figure many fields. Why is yield so low? (Stalks not there.) Why stalks not there? (Seed not good, etc.)

3. Harvesting and Storing Seed Corn.

To show why, when and how. Go into best field before September 1st, select best ears from best stalks, hang up (double string) keep dry, airy, not hot, not cold, free from pests.

4. Judging Corn.

Each pupil 5 good ears. Use score cards. Have much rapid placing with oral reasons. Display best corn in school room. Have corn show.

5. Procure (or make) seed corn tester.

If sawdust tester used, procure plans from Extension Department, Ames. Test a few ears for each pupil in school. Test for farmers. Test other seeds if parents wish. Have pupils report results.

6. Preparing corn for planter.

Butts and tips out. Sorting to two sizes. Clean. Use grader. Hand picking. Sacking. Labeling. Hanging.

7. Preparing Planter for Corn.

Drop planter 100 times and record each drop. Change plates or grade corn till accurate. Test with 2 sizes corn.

8. Preparing seed bed and Planting.

Saving moisture, disking, harrowing, rubbish, fall plowing, spring plowing, drilling, checking, depth.

9. Cultivating.

Purpose. Root system of corn. Early, late, deep, shallow, dust mulch.

10. How the Corn Plant Grows.

Kernel, roots, stem, leaves, nodes, tassel, ear, silk, husks, pollination, development stages, suckers, height of stalks, of ears, angle of ear, length of shank, etc.

11. History of Corn Plant.

Consult books (especially Bowman and Crossley) and encyclopedias.

12. Kinds and Varieties of Corn.

Get samples of pod, pop, sweet, flour, flint and dent. Compare, locate, give uses, etc. Name and identify varieties (Reid's,, Leaming, Silver King, etc.)

13. Improving the Corn Crop.

Consult references, especially Bowman & Crossley. Discuss planting best ears on south or west side of field. To show difference in yield of ears have ear to row test; viz., plant 10 or more short rows (50 hills) using corn from separate ear in each row. Save balance of ear. Record yield and other results and compare remaining portion of ear.

14. Corn Arithmetic.

Problems on per cent of stand, per cent of drop, per cent of shelled corn, loss from poor stand, cost of work, kernels on ear, ears to plant acre, ears to bushel, bushels in load, in cribs.

15. Friends of the Corn Field.

Study birds in their relation to farming. Eating insects, weed seed, etc. Lists of helpful birds.

16. Machinery for the Corn Crop.

Kinds of plows, discs, harrows, weeders, planters, rollers, cultivators, huskers, harvesters, shredders, etc. Advantages, adjustment, care, etc.

17. What becomes of the Corn Crop.

Feeding, Marketing, grading. Manufacturing. Composition of Kernel, cob, etc. Manufactured products and by-products. Consult authorities. Write Board of Trade, Omaha or Chicago, for grading rules.

18. Corn and the Rotation of Crops.

Plan sample rotation, make charts of rotations for local farms. Weeds, insects, need of legume, fall plowing, adapting work, stock on the farm, preserving fertility, humus, washing. Consult references.

19. Weed Enemies and how to Treat Them.

What is a weed? Which worst? Why? Where found? Make collections of worst weeds and their seeds. Study how they grow, disseminate, and how to exterminate. Consult references. Procure samples from Ames.

20. Insect Enemies and how to Defeat Them.

Make collections worst insects, corn root worm, root louse, cut worm, white grub, wire worm, etc. Procure samples from Ames. Consult Bowman & Crossley, Holden and other references.

GENERAL SUGGESTIONS

Have only one class, combining the grades 8, 7 and (if it seems best 6)—pupils 12 to 18 years of age. Approach the subject from the view point of better farming. Give much work to be done outside of school. Recite 2 or 3 times per week as a regular exercise. All requirements should be definite and work thorough holding the pupils as responsible for this as for the other school work. Teachers and pupils keep questions, answers and other work in special note books. Procure and use many helps such as books, circulars, bulletins and agricultural papers but let the study of things (corn, soil, plants, machines, weeds, insects, etc.) be of more importance than the printed page. If you wish to simply follow this outline a text book in the hands of each pupil is not necessary but several should be at hand for consultation. If you have a regular text book class in agriculture as in other studies use this outline to amplify the text. To compensate for time so spent omit pages of text devoted to those phases of agriculture not pertinent to your locality.

Use your results to improve other studies such as language work, reading, spelling, arithmetic, etc. Have many booklets made using this material as subject matter illustrating by original drawings and by pictures cut from papers. Booklets should relate to the industries of the neighborhood and should contain largely the results of child's own investigation and knowledge. Make charts of important tables, data and comparisons using manila paper and marking crayon. Have children inquire, read, observe, experiment and demonstrate at home; report, discuss, experiment, explain, inquire at school. Encourage use of tools at home and school, making corn trays, testing boxes, etc. for class use. Have a "corn day" celebration at school and invite entire district. (see Boys' and Girls' Clubs pamphlet.) Organize a club. Have best corn expert in your locality address school. Visit fields and cribs. Have a school museum or collection. Arrange logically and tastefully. Have a picture gallery of best corn pictures. Have "Rogues Gallery" of worst weeds, insects. etc. Debate farm questions. Take pictures of your pupils at work. Report at your township or county meeting. Keep some experiment related to corn crop in progress in the school room such as depth of planting; vitality of tip, butt and middle kernels, capillarity of different soils, etc. Have class learn Holden's Corn Commandments. Get catalogs from seed and machinery firms. Write to us at Ames whenever you need any assistance which we can give.

GENERAL TEXTS ON AGRICULTURE

Author	Publisher	Address
Warren	The Macmillan Co.	Chicago

Wilkinson	American Book Co.	Chicago
Fisher & Cotton	Chas. Scribners Sons	Chicago
Burkett, Stevens & Hill	Ginn & Co.	Chicago
James	D. Appleton & Co.	Chicago
Hatch & Haselwood	Row, Peterson & Co.	Chicago
Wilson & Wilson	Webb Publishing Co.	St. Paul, Minn.
Bessey, Bruner & Swezy	University Pub. Co.	Lincoln, Neb.
Goff & Mayne	American Book Co.	Chicago

Books of Miscellaneous Exercises in Agriculture.

Davis	Orange Judd Co.	Chicago
Hayes (x)	McGill-Warner Co.	St. Paul, Minn
Evans	W. M. Welch Mfg. Co.	Chicago

(x) Also contains some work in sewing.

Some Other Good Books to Have in the School Library.

Bowman & Crossley's "Corn"	Bowman & Crossley	Ames
Holden's Successful Corn Culture	Successful Farming	Des Moines
Holden's "A B C of Corn Culture"	Simmons Pub. Co.	Springfield, O.
Holden's "Corn Secrets"	Farm Journal	Philadelphia
Jessie Field's "Farm Arithmetic"	Henry Field	Shenandoah, Ia.
Stevens "Practical Arithmetic"	Chas. Scribners' Sons	Chicago
"Examining and Grading Grain"	Ginn & Co.	Chicago

Helps (Free. Send for them.)

From Experiment Station, Ames, Iowa.

List of Available Bulletins.

From Extension Department, Ames, Iowa.

Boys' and Girls' Clubs in Iowa.

From U. S. Department of Agriculture, Washington, D. C.

Year Book of Dept. of Agr.

Circular No. 2. List of Publications for Free Distribution.

Circular No. 3. List of Publications for sale.

Papers (Send for sample copies and terms. Subscribe for one or more to come to school.)

Wallaces' Farmer	Des Moines
Successful Farming	Des Moines
The Homestead	Des Moines
Register & Farmer	Des Moines
Kimballs Dairy Farmer	Waterloo
Farmer & Breeder	Sioux City
Breeders Gazette	Chicago
School Agriculture	Chicago

For Traveling Library write state Library Commission, Des Moines Iowa for explanation of plans.-

Iowa Year Book of Agriculture, write Secy Board of Agr., Des Moines, Iowa.

HOLDEN'S CORN COMMANDMENTS

1. Thou shalt test every ear of thy seed corn between February 20 and March 20 of this year, and every year thereafter, and discard all ears which show weak sprouts, dead or mouldy kernels.
2. Thou shalt grade thy seed corn and test they planter to secure uniform and accurate dropping.
3. Thou shalt improve thy corn by planting thy choicest seed on one side of thy corn field.
4. Thou shalt harvest and properly hang up in a dry place, all thy seed corn during the last ten days of September.
5. Thou shalt not import seed corn from a distance.
6. Thou shalt not follow oats or other small grain with corn.
7. Thou shalt not continue to farm without a rotation of crops.

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